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# Worldwide Report

NUCLEAR DEVELOPMENT AND PROLIFERATION

No. 46



FOREIGN BROADCAST INFORMATION SERVICE

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**WORLDWIDE REPORT**  
**NUCLEAR DEVELOPMENT AND PROLIFERATION**

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WORLDWIDE AFFAIRS

BRIEFS

YUGOSLAV-PRC ACCORD--Beijing--An agreement between the governments of Yugoslavia and the PRC on cooperation in the sphere of peaceful use of nuclear energy was signed in Beijing today. The agreement envisages exchange of scientific and technological information and experience acquired in the sphere of the use of nuclear energy for peaceful purposes. On behalf of the SFRY Government the agreement was signed by Ambassador Mirko Ostojic and on behalf of the Chinese by Liu Wei, minister of the Second Ministry of Machine Building. [Text] [LD300918 Belgrade TANJUG Domestic Service in Serbo-Croatian 0742 GMT 30 Apr 80]

CSO: 5100

## AUSTRALIA

### ANTINUCLEAR-POWER GROUP CLAIMS SUCCESS IN QUEENSLAND

Brisbane THE COURIER-MAIL in English 7 Apr 80 p 19

[Text] The Campaign Against Nuclear Power group claimed yesterday that the Premier, Mr Bjelke-Petersen, had backed down from plans to build a uranium enrichment plant in Townsville.

Group spokesman Mr Bruce Doyle said hostile public reaction to the planned complex had forced the Premier's change of fact.

He said the Australian Labor Party and the National Party had conducted opinion polls on local attitudes to the plans.

The ALP poll found twice as many people opposed construction of a plant as supported it.

The National Party had not released its finding, he said.

The Premier had taken fright because the Government would lose its two Townsville seats with swings of less than 2 percent, he said.

#### Favored

The Maritime Services Minister, Mr Hooper, holds Townsville West for the National Party. Dr Scott-Young (Lab) holds the seat of Townsville. Mr Wilson (ALP) holds Townsville South.

Mr Doyle said that when uranium enrichment plant proposals

were announced in December, Townsville was the most favored site.

"Just two months after the announcement, Mr Bjelke-Petersen was telling overseas interests that Queensland would not build an enrichment plant near Townsville. He said numerous isolated areas could be used instead."

The Premier's about-face was good news for Townsville but no solution to the problems of uranium enrichment.

He said wherever the plant was built it would require Queensland's electricity generating to be almost doubled.

This block of electricity would be sold cheaply, subsidized by ordinary consumers.

CSO: 5100

## AUSTRALIA

### REPORTS ON JABILUKA EMBARRASS DEVELOPERS

#### Marketing Agency Report

Sydney THE SYDNEY MORNING HERALD in English 2 Apr 80 p 25

##### [Text]

Pancontinental Mining Ltd has negotiated the first marketing agency agreement for its huge Jabiluka uranium deposit in the Northern Territory.

The company has moved a further tiny step closer to getting its mining operation off the ground by giving the big Japanese trading firm Nichimen Co Ltd the exclusive agency to market its uranium in Japan.

Pancontinental cannot move to negotiate firm contracts until it receives a number of approvals, the most important of which is from the Federal Government.

But Tokyo reports suggested last night that Nichimen was willing to take about 300 short tons a year of Jabiluka uranium, starting in 1984, for sale to Japanese utilities.

This would be one-sixth of Pancontinental's proposed initial output of 3,000 tonnes of uranium ore.

But a spokesman for Nichimen in Australia said last night he hoped the company would be able to sell as much of Pancontinental's uranium as it could get.

Pancontinental's output is scheduled to rise to 4,500 tonnes in years three and four, and finally to 9,000 tonnes from year five.

Jabiluka's two main ore bodies contain a total of 207,400 tonnes of proven uranium ore, grading 0.35 per cent in one area and 0.39 per cent in the other.

#### Trade Minister's Reaction

Melbourne THE AGE in English 3 Apr 80 p 19

[Text] The Federal Government yesterday refused to become enthused by the latest moves to bring Pancontinental's Jabiluka uranium deposit to commercial development.

The acting Minister for Trade and Resources, Mr. Nixon, told Parliament he was aware of reports that Pancon had given "so-called rights" to Nichimen Co. Ltd. to market Jabiluka uranium in Japan.

But Mr. Nixon said Pancon did not have Federal Government approval to develop Jabiluka and thus did not have the right to enter agreements without Government approval.

The only uranium operations which have approval are Mary Kathleen, Ranger, Nabarlek and Yeelirrie.

Mr. Nixon said Pancon did not have approval to sell uranium from Jabiluka to Japan or any other country. He implied that this approval would not be forthcoming soon.

Report from Japan suggests that Nichimen is willing to take about 500 short tons a year of Jabiluka uranium, beginning in about 1985. [Sentence as published.]

#### Company Chairman's Remarks

Perth THE WEST AUSTRALIAN in English 4 Apr 80 p 24

[Excerpts] Sydney: The chairman of Pancontinental Mining Ltd, Mr A. J. Grey, said yesterday that the company had been very embarrassed by statements that it had entered into contracts for the sale of uranium from its Jabiluka ore body.

"No such contracts have been entered into," Mr Grey said.

"Pancontinental is well aware of the Government's long-standing policy that no sales contracts can be negotiated or concluded unless and until the project receives Government approval after, among other things, satisfactory arrangements being entered into with appropriate Aboriginal authorities," Mr Grey said.

He said that Pancontinental had appointed Nichimen as its agent to sell uranium to the Japanese market, but only if and when Government approval was granted for the development of Jabiluka.

CGO: 5100

## AUSTRALIA

### ADELAIDE NEWSPAPER INVESTIGATES MARALINGA AFTEREFFECTS

#### Fallout over Adelaide

Sydney THE SYDNEY MORNING HERALD in English 18 Apr 80 p 3

[Text] The Adelaide Advertiser has uncovered a document which appears to show that fallout from an atomic explosion at Maralinga on October 11, 1956, fell over the city of Adelaide and surrounding countryside.

Air samples taken at the time — according to a scientific paper written at the time by Dr H. R. Marston, a former director of CSIRO's division of bio-chemistry — gave radiation readings up to 900 times higher than found in the air before the explosion.

The paper has been available to those in the know for a long time, but public access has been difficult and people have been unwilling to talk about it because of fears of breaching the Official Secrets Act.

Dr Marston wrote the paper in February, 1957. It was not published until late 1958.

Dr Marston, who was based in Adelaide, died of a heart attack on the day he retired from the CSIRO in 1965 at the age of 65.

The paper says that on October 11 — the day of the blast — an air-filtering system, part of routine but irregular air tests for background radiation, was set going in Adelaide.

When the filter was checked 24 hours later, it gave a radioactivity reading of 95,000 counts every 100 seconds.

All previous tests for background radiation had yielded no more than 100 counts in 100 seconds.

Further analysis of the air sample for October 12-13 revealed the presence of iodine 131 — a tell-tale sign of debris from a nuclear explosion.

It is not known if Dr Marston detected other radioactive isotopes. His original report, which has never been published but is held at the Academy of Science in Canberra, did give details of wavelengths of radioactive materials found.

These wavelength studies, which may show that he found material such as strontium 90, were dropped from the report eventually published because of likely security breaches.

[The composition of a nuclear device can be determined from bomb waste products, and Britain was not planning to give the Russians information.]

When such high activity was recorded on October 12-13, further air samples were taken for the next six days.

On October 13-14 the count was 11,200; on October 14-15, 1,630; on 15-16, 3,850; on 16-17, 350; 17-18, 21; 19-20, 62.

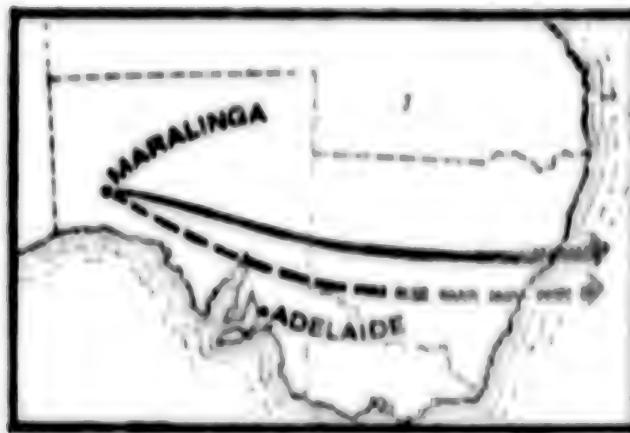
Further to this, according to the paper, on October 17 a thyroid gland from a sheep which had been grazing at Glenthorpe, 15 kilometres south of Adelaide, was taken and examined.

The thyroid contained 4,000 times more iodine 131 than other sheep thyroids taken and tested just before October 11.

There is no suggestion that the fallout has contributed in any way to any illness in Adelaide or the surrounding area.

Although the increase in iodine 131 was high compared with earlier thyroid samples, once translated into human terms the maximum figure would be low — about 0.02 micro-curies, much less than a diagnostic dose of iodine 131 used in medical work today.

Thus, while the fallout was widespread over Adelaide and the nearby countryside and well above previous levels of background radiation, the carpet of radioactive particles posed no immediate danger to health.



Fall-out from the October 11, 1956, test. The unbroken line shows the direction of the main fall-out, and the broken line shows where the secondary plume went, according to the Atomic Weapons Test Safety Committee's report published in 1958.

### New Cancer Cases Reported

Sydney THE SYDNEY MORNING HERALD in English 18 Apr 80 p 3

[Text]

**ADELAIDE.** — Six new cases in South Australia of death and disease among former Maralinga atomic bomb test workers came to light yesterday amid growing concern about the effects of the blasts on men employed at the site during the 1950s and early 1960s.

The reports bring to 30 the number of ex-servicemen, Commonwealth policemen and civilians who worked at the site and are known to have died from cancer or other diseases.

At least 12 others have contracted cancer or other disease, but are still alive.

The new cases were reported to The Advertiser newspaper, Adelaide, which is running a series of articles about the Maralinga tests and the possible effects of the atomic bomb explosions.

Recent evidence uncovered by the paper shows that

RAAF airmen flew directly into radioactive clouds, contaminating themselves and their aircraft.

RAAF ground crews worked on radioactive aircraft without protective clothing or with a bare minimum.

Protective clothing regulations were not always enforced.

Aborigines wandered through test sites and were contaminated with radioactivity.

Civilian workers were able to enter radioactive areas of

Maralinga without restriction. Materials were pilfered from radioactive areas during and after the tests.

The British tested 12 nuclear bombs in Australia between 1952 and 1957. Nine of the tests were held in South Australia, and most of the bombs were in the kiloton range.

Seven of the South Australian tests were at Maralinga and two at Emu, north of Maralinga. Other British nuclear weapons were tested at Maralinga from 1958 to 1964.

British servicemen were exposed to radiation during the tests to a far greater degree and in higher numbers than the Australians.

In the air they flew Canberra bombers into the still-

forming mushroom clouds and then tracked the radioactive clouds.

On the ground they were deployed within eight kilometres of the ground zero while Australian observers were kept back to 11 kilometres.

For most of the soldiers and airmen, some of whom have come forward publicly with their story, the idea of seeking compensation for nuclear injuries seemed unthinkable.

However, the Atomic Veterans' Association, — an organisation recently formed in Queensland to bring together information about possible effects of the bombs — made a strong call yesterday for a full Government inquiry into the effects of radiation on the military and civilian personnel involved.

The association's co-ordinator, Mr Pat Creevey, of Brisbane, said this week he had reports from 80 people who feared they or their families were victims of radiation contamination.

Mr Creevey said only a thorough and independent inquiry could reveal whether there was a direct link between radiation exposure and subsequent deaths from cancer among former Maralinga workers.

The association was formed by RSL members in Queensland and has offered to help ex-servicemen and civilians who believe they have suffered ill effects from radiation.

The association has called a public meeting for next week, and has sought support from the ACTU and Public Service unions, the Australian Council of Churches, Aboriginal groups and individual politicians.

Among those who have reported illness is a former Maralinga worker, Mr Frederick Dean Sanders, of Murray

#### Bridge, South Australia.

He worked as a plumber at the test site in 1956 when four bombs were detonated. He now has psoriasis.

He claimed safety precautions were not always adhered to and civilian workers had access to areas contaminated by the bombs.

His left hand had been irradiated while he was working on a broken drain from a laboratory where 35mm film of the blast was processed.

He claims that although they were told not to touch anything, at least two people took mementoes from the site.

First evidence of RAAF airmen being irradiated came from Lance Edwards, of Coolangatta, on the Gold Coast, who retired from the RAAF as a squadron leader in 1971.

He says he flew as a flight sergeant air gunner in a Lincoln bomber used to track radioactive cloud from the 1953 series of tests at Emu Field, about 200 kilometres north of Maralinga.

Lance Edwards had a malignant tumor removed from his thyroid in 1959 and subsequently had intensive radiotherapy.

He says a Repatriation Department doctor told him radiation could cause the type of cancer he contracted.

One of the ground crew who worked on the radioactive aircraft at Woomera but is not alive to talk is Maurice Bradford, then a leading aircraft man.

He died of cancer of the oesophagus in 1972.

His wife Vera, of Bribie Island, near Brisbane, says her husband told her several times before he died he was convinced the cancer which was killing him was connected with his work on radioactive planes.

## Crew Member on Precautions

Brisbane (Q COUNTRY-MAIL in English 1 Apr 80 p 3)

[Text]

**A former airman claimed yesterday the only precaution taken with air crews who flew through the Maralinga atomic cloud was to order them to have a shower.**

Mr Eric Geddes, said in Brisbane yesterday that air crews were ordered to scrub themselves after radiation was down to an acceptable level.

"When we landed we were contaminated to the extent that a geiger counter reading on the crew was phenomenal," he said.

Mr Geddes, on holiday from Sydney, was commenting on a report that the then Health Minister, Mr Alan Funnell, had said in 1973 Australians were not exposed to dangerous radiation at Maralinga.

The VFA became of Maralinga monitoring at the time.

"It disgusts me when people like Mr Funnell make such statements," Mr Geddes said.

"What happened, he did I didn't know but I am willing to bet it was done."

Mr Geddes said he operated Maralinga equipment on a Learjet based

at Woomera, flew through the atomic cloud after a decontamination at Maralinga about 1970.

**Sensitive until radiation was down**

"It was like shutting the gate after the horse bolted."

Mr Geddes said there had been absolutely no precautions taken with air crew before the flight.

### Serious

He was 30 at the time. "We were in that cloud for 1½ hours and the equipment registered a total maximum of radiation," he said.

"We didn't realize how serious the cloud was going to hang back at Maralinga and how the decontamination team handling the materials on the aircraft used to collect dust."

"There's with great long distance drivers and passengers were used to measure it and fix it. The people operating them stood back 3 metres from the instruments."

"Our flying controls were taken, driven to and we were put into cameras and everything broken. They had to be arrested

### Later tests

The only follow-up action had been blood tests taken three years later and which apparently showed up nothing.

He also understood that the aircraft used in the flight had been flown back to its base at Amberley where it remained unscrubbed for years.

Mr Geddes said he had last touch with his crew from the flight but had not heard of anyone dying or becoming ill as a result.

Mr Funnell had remained quiet and all he can think is that the post flight "wash down" was superficial.

## AUSTRALIA

### SOUTH AUSTRALIA SEEKS URANIUM ENRICHMENT PLANT

Premier in London

Perth THE WEST AUSTRALIAN in English 11 Apr 80 p 23

[Text] London, Thurs: The South Australian Premier, Dr Tonkin, is still confident that his State will get Australia's first uranium enrichment plant.

He said this after a meeting with executives of URENCO-CENTEC, the European consortium likely to build such a plant.

"Every time we meet we make progress," Mr Tonkin said. "These were the best talks yet."

"We identified certain areas for immediate action in our quest for a URENCO-CENTEC designed enrichment plant."

The first stage of a joint feasibility study

is to be finished in the next few months, Dr Tonkin said.

Later this month, URENCO-CENTEC executives would return to Adelaide for further meetings.

By the enrichment process, natural uranium is prepared for use in nuclear reactors.

Dr Tonkin said, it seemed clear that URENCO-CENTEC's gas centrifuge process was the best for enriching uranium in Australia and would be best located in South Australia.

URENCO-CENTEC is a consortium of government and industry from Britain, the Netherlands and West Germany. It has four gas centrifuge plants in commercial operation in Britain and the Netherlands. —AAP

## Energy Minister's Predictions

Brisbane "A COURIER-MAIL" in English, 12 Apr 80 p 16

[Text] Adelaide,--South Australian Mines and Energy Minister, Mr Roger Goldsworthy, said yesterday that a new study had confirmed predictions that demand for uranium ore and enriched uranium would increase substantially in the next 10 years.

In a lunch address to the Australian Chamber of Commerce here Mr Goldsworthy said he felt that uranium producers were operating in a healthy market and predicted "certainly can be true of the future".

He said a study of supply demand of 24 countries supported claims that demand for nuclear powerplants would increase by more than 100 percent between now and the turn of the century.

The study also found that mining uranium enrichment capacity would be fully stretched by 1990.

Mr Goldsworthy said that the expansion of uranium mining in South Australia because of its location in the heart of the world's uranium belt of the southern hemisphere.

South Australia's present share of production of the world's supply of uranium ore is about 10 percent.

He said he had told the Australian Parliament that the country had the largest share of the world's uranium reserves and the largest uranium deposits. South Africa had predicted that nuclear powerplants around the world would increase from 10,000 megawatts in 1979 to 1 million megawatts by 1990.

"There is no doubt that statement, the report of the International Nuclear Fuel Cycle Evaluation has been more accurate. This is a significant

shift, involving as it did some 20 countries whose interest in the nuclear energy question varied considerably," he said.

The study generally endorsed the IAEA figures and estimates that demand for nuclear powerplants will rise from 10,000 to 15,000 megawatts by 1990. The report projected a 100 percent increase in demand by 1990 to 20,000 megawatts of power by 2000.

From this future the consequences that demand for uranium ore and enriched uranium will increase markedly."

©D: \$100

## AUSTRALIA

### WEST AUSTRALIAN OFFICIAL: NUCLEAR POWER NO CERTAINTY

Perth THE WEST AUSTRALIAN in English 12 Apr 80 p 4

(Text)

"There was no certainty at this stage that WA would get nuclear power," a senior State Energy Commission official said yesterday.

The assistant commissioner (engineering), Dr R. H. Booth, said that the only thing certain was that Collie coal would be used as long as it was available.

Dr Booth told the State Standing Committee on National Resources in Perth that WA was now急于 to be prepared for nuclear power if it was needed in the future.

The BBC had been asked to carry out this task.

It was now testing sites with the intention of having one or two ready, if needed.

The decision on a nuclear power station would not be made for a few years.

Replying to questions from ALP senators, Dr Booth said that the overall energy supply situation in WA was that while Collie coal reserves were adequate, coal would be the preferred power generating source.

The cost of nuclear power broadly made it preferable to using coal from the Eastern States or oil for power generation in WA.

However, it was difficult to give any accurate predictions at this stage on the cost of nuclear power generation.

Planning for nuclear power had not yet got to the point where specific cost and production estimates could be given.

Nuclear power cost estimates given in State Parliament by the Government had been based on information available at that time.

Such information was being constantly updated on the basis of the latest information from overseas.

The estimates had included the cost of decommissioning and waste disposal.

(Dr Booth's comments were in line with the State Labor government's stand before the last election. The Government said it would not assume that it had a mandate to install a nuclear power plant in WA if it won the election. However, a decision must be made by 1985.)

Dr Booth also said that he believed it would be some time before an acceptable set of rules governing the licensing and operation of nuclear power stations was introduced in Australia.

In the meantime, the Government and the commission were using United States regulations as a basis. There were the most stringent in the world at the moment.

The other members of the hearing, which was investigating alternative energy sources, were ab-

sent about nuclear power.

A spokesman for the Friends of the Earth, Mr G. Smith, said that the capital cost of nuclear power stations was higher than those involving coal.

Last year, the Government had said that the cost was \$500 per kilowatt for a comparable reactor. The comparable cost for a plant in the Philippines had been \$600 per kilowatt.

This was still one-third higher than the cost of an extra unit for Collie coal, Mr Smith said.

Mr D. J. Hall, a mechanical engineer with over 20 years research and development experience with the Australian Atomic Energy Commission, said that nuclear power was up to 30 per cent cheaper than coal-fired power in established plants in the United States and France.

Earlier, Dr Booth said that the North West Shelf natural gas development would be the single most important and effective step for reducing WA's heavy dependence on petroleum imports.

The project was expected to reduce this dependence from 70 per cent to about 40 per cent.

## LACK OF PROGRESS IN NUCLEAR POWER DEVELOPMENT ANALYZED

Bombay THE TIMES OF INDIA in English 31 Mar 80 p 8

[Editorial]

[Text] The gyrations of the U.S. policy on enriched uranium fuel for Tarapur have served to detract attention for much too long from major aspects of India's nuclear programme. The main responsibility of the department of atomic energy (DAE) is to create capacity for the generation of nuclear power but it has failed to commission a single new plant since the first unit of the Rajasthan atomic power station began to feed the northern grid in 1973. The progress of the two units, being built at Narora in Uttar Pradesh, has been slow and the other two units of the Madras atomic power station have been officially in an "advanced stage of construction" for years. The case of the fast-breeder test reactor at Madras is no different. Nor has the DAE been able to make any fresh starts since the middle of the fifth Plan. The heavy water required to run the five units under construction has still to be produced or procured in requisite quantity. A similar uncertainty dogs the fate of the test reactor in Madras--only the bottleneck in this case may be the enriched uranium to be supplied by France. As if all this were not enough cause for disquiet, there is no perspective plan in field of nuclear energy.

It would be churlish, however, to blame the department of atomic energy alone for this state of affairs. For, the problems are political, industrial and technological and cannot be solved without a concerted national effort. Canada's decision to abrogate its cooperation agreement with India after the peaceful nuclear explosion in 1974 gave a severe jolt to plans for the construction of the second unit of the Rajasthan plant. Likewise, the erection of the four heavy water plants has taken unduly long due to power cuts, failure of indigenous equipment manufacturers to supply materials on schedule, labour trouble and so on. But, beyond that, two other factors have seriously inhibited the DAE's programmes in the recent past. First, the commitment of the Janata-Lok Dal governments to nuclear power, as indeed to the promotion of science and technology generally, was less than unequivocal: for the last three years the DAE has been adrift like a rudderless ship

**In a sea of uncertainty, Secondly, President Carter's dual concern for nuclear safety and nuclear nonproliferation, whether one likes it or not, has had its impact: it has slowed down, if only temporarily, the development of nuclear power in all Western countries and persuaded them to tighten their regime of safeguards. Whatever the complexion of the government in power in New Delhi, it could not entirely escape the consequences.**

**Fortunately, most of these difficulties are now a thing of the past. President Carter's nuclear policy has all but failed: most Western countries are now stepping up their nuclear power programmes vigorously. Besides, the new Congress (I) government, unlike the previous regimes, is firm in its conviction that this country must move ahead on the same road. The DAE must, therefore, lose no further time in completing the projects under way in cooperation with the ministries of external affairs, heavy industry and defence, and in drawing up a perspective plan for the future. At the same time, it should pursue research and development to enrich uranium on a commercial scale for the Tarapur plant and its programme for the construction of fastbreeder reactors a lot more seriously.**

CSO: 4220

## NEW BOOK OUTLINES NUCLEAR PROGRAMMING FOR NATION

Madras THE HINDU in English 1 Apr 80 p 4

[Review by T. Rajagopalan, of the book "Atoms of Hope" by Mohan Sundara Rajan, Allied Publishers Private Ltd, Madras]

[Text] Nuclear energy has been very much in the news on account of its tremendous potentialities for alleviating the power shortage and the dangers posed by any malfunctioning of nuclear power plants. Many countries including India have already set up atomic power stations and embarked on long term planning for putting the 'nuclear genie' to good use. The book under review throws much light on the various aspects of the question and explains in simple terms the phenomena like chain reaction.

The author lucidly traces the developments relating to nuclear physics in the first two chapters and then goes on to describe nuclear reactors and safety aspects in the next two. The remaining eight chapters are devoted to a fairly comprehensive review of several facets of nuclear programming with particular attention to Indian schemes. Dr Homi Bhabha's vision in getting India's atomic energy plans into shape is also highlighted.

On nuclear waste disposal, a really ticklish question, Mohan Sundara Rajan writes: "A credibility gap has developed between those who manage the nuclear plant and the general public...No big power station may be built until the waste problem has been "completely solved"...The stark fact is that it is unlikely to be completely solved, given the nature of the wastes and the imperfect machinery available to tackle them" (p 62).

Referring to the Pokharan implosion, the author writes: "In retrospect, there is a feeling that India could have waited for some more time before carrying out a peaceful nuclear explosion. She might have completed her projects without any reduction in foreign supplies and could have benefited by the progress made in explosion technology elsewhere" (p 95).

Chapter 10 gives a good account of several applications of radioisotopes--in agriculture, industry and medicine. The next chapter 'Power from Fusion'

refers to the induction of laser technology as well: "The multiple-beam laser device at the Lawrence Livermore Laboratory in the United States is called Shiva, after the Hindu God with several arms." (p. 121).

The last chapter 'The Scare and the Scare-crows' analyses the various dangers inherent in nuclear energy programmes. The author writes at one point: "There is no doubt about the risk of cancer from exposure to radiation. But such risks are small. Cigarette smokers pose a greater risk to their neighbours!" (p 127)

The blurb points out that the author visited several establishments of the Atomic Energy Commission in India for writing this book. A specialist in science communication, he has managed to make the subject interesting. On the whole, this book is a useful addition to the existing literature on the subject. A glossary and bibliography add to its value.

CSD: 5100

## CANDU-MITI TO SEND EXPERTS TO CANADA

Tokyo KYODO in English (no time given) 7 May 80

[Text] Tokyo May 7 KYODO--The Ministry of International Trade and Industry (MITI) disclosed Wednesday a plan to send a team of experts to Canada next month to study the possibility of adopting the Canadian-developed Candu nuclear power reactor.

MITI said it would immediately begin consultations with the science and technology agency on the issue.

MITI revealed the plan upon hearing reports from Vancouver quoting Japanese Prime Minister Masayoshi Ohira as telling his Canadian counterpart Pierre Trudeau that he would have government experts study the feasibility of introducing the Candu reactor.

The MITI move is expected to add fuel to a controversy between it and the Japan Atomic Energy Commission (AEC) over the advisability of Japan introducing the Candu reactor, government sources said.

The AEC ruled against the introduction of the heavy-water type reactor last August, stressing the need to develop Japan's own advanced thermal converter reactor (ATRL). MITI has been advocating introduction of the Canadian-developed reactor for many years in the belief it will reduce Japan's dependence on U.S.-enriched uranium and provide a practical stopgap until the present light-water type reactors are replaced by fast breeder reactors.

The ministry allocated yen 700 million in the fiscal 1980 budget for studying problems related with the Candu reactor.

CSO: 3100

BRIEFS

**CANDU REACTOR PURCHASES**--Tokyo, May 16 KYODO--James Donnelly, president of Atomic Energy of Canada Ltd., urged the government Friday to import Canadian-produced Candu nuclear reactor that Japan's Atomic Energy Commission has declined to install for electric power plants in Japan. Donnelly made the request when he met Yuji Osada, director general of the Science and Technology Agency. Osada, who is also chairman of the commission, said, however, there have been no developments requiring the government to change its policy to introduce the Candu reactor at present. The issue was also taken up earlier this month when Prime Minister Masayoshi Ohira held talks with Canadian Prime Minister Pierre Trudeau during his official visit to that country. Donnelly was here en route home from attending a Japanese-Canadian businessmen's meeting held in Kyoto. [Text] [OW160539 Tokyo KYODO in English 0408 GMT 16 May 80]

**NUCLEAR TECHNOLOGY EXPORT CONTROL**--Tokyo, May 15, KYODO--The U.S. and Britain have asked Japan to tighten the export controls on nuclear technology, including uranium-enriching equipment and components, the NIHON KEIZAI SHIMBUN reported Thursday. Quoting government sources, the economic daily said the U.S. and British governments made the request being wary of nuclear-related technology which has started flowing to the Islamic sphere, such as Pakistan, Libya and Iraq, from the West. The report said the two nuclear powers asked Japan to take more effective steps to guard secrets regarding uranium enrichment and reprocessing of used nuclear fuels, and to ban the export of U-enriching and used nuclear fuel reprocessing equipment and components. The sources said the Japanese Government intends to make it mandatory for Japanese nuclear equipment manufacturers to report to the government purchase inquiries from other countries about nuclear equipment and components that are liable to be utilized in manufacturing nuclear weapons. [Text] [OW150342 Tokyo KYODO in English 0134 GMT 15 May 80]

**FUKUI REACTOR REOPENS**--Fukui, May 15, KYODO--Full-scale operation of the new type nuclear power reactor "Fugen" reopened at 4 p.m. Thursday in Tsuruga, Fukui Prefecture. The Fugen reactor of the Power Reactor and Nuclear Fuel Development Corp. of Japan passed Thursday the final examination of the government before the reopening. No abnormality was discovered in the periodical examination of the nuclear reactor itself, fuel exchanger, and other parts of the Fugen, corporation officials said. The first periodical check on the reactor began February 1. Since April 24, it has been in adjusting operations, last step of the periodical examination, they added. [Text] [OW150859 Tokyo KYODO in English 0855 GMT 15 May 80]

REACTOR SHUTS DOWN--Fukushima, May 16, KYODO--A light water-cooled reactor at Tokyo Electric Power Co.'s, No. 1 nuclear power station, southeast of here, came to an automatic halt Thursday night due to malfunctioning of a hydraulic pressure gauge controlling the steam generated by the reactor. There was no radiation leak. The 1.1 million-kilowatt capacity generator stopped when the gauge signaled a decline in the oil pressure. The malfunction of the No. 6 reactor was its first since it was put into commercial operation last October. Three of the six reactors at the facility are currently undergoing periodic checks. [Text] (OW160655 Tokyo KYODO in English 0644 GMT 16 May 80)

CGO: 5100

INTERNATIONAL AFFAIRS

BRIEFS

GDR-USSR CONSTRUCTION PROTOCOL--Moscow--A protocol on cooperation in the construction of stages 3 and 4 of the nuclear powerplant Nord in the GDR was agreed in Moscow on Thursday. On behalf of their governments it was signed by the GDR deputy minister for heavy engineering and plant construction, Helmut Dersch, and by the first deputy chairman of the USSR State Committee for Foreign Economic Relations, Vitaliy Morozov, reports TASS. [Text] [LD242238 East Berlin ADN International Service in German 1859 GMT 24 Apr 80]

CSO: 5100

CASTRO MADERO RETURNS FROM TALKS IN CANADA

PI302142 Buenos Aires NOTICIAS ARGENTINAS in Spanish 2018 GMT 29 Apr 80

(Excerpts) Buenos Aires, 29 Apr (NA)--Vice Adm Carlos Castro Madero, chairman of the National Atomic Energy Commission, today termed as "highly positive" the negotiations he has just concluded in Canada for the construction of the Embalse Rio Tercero nuclear plant in Cordoba Province.

Upon his arrival at Ezeiza Airport, Castro Madero stated: "We explained to the Canadian Government the status of the cooperation between our two countries, which has been affected by financial problems." He added: "We discussed with Atomic Energy of Canada, Ltd, the construction of the Embalse Rio Tercero nuclear plant, and we reached an agreement, which must be approved by the respective governments."

Castro Madero also stated that this agreement includes "the scope of future cooperation between Argentina and Canada."

It was reported last year that the construction of the Embalse Rio Tercero nuclear plant was delayed because the Canadian company wanted to recover \$130 million which it spent due to unanticipated higher costs.

Asked about the possibility of reaching agreements with the Soviet Union in the nuclear sector, Castro Madero replied: "After an exploratory visit, the Foreign Ministry should make a request for the nuclear energy cooperation that interests us."

Castro Madero announced that contracts for uranium exploitation at Sierra Pintada in Mendoza Province will be signed next week.

CSO: 5100

## FRG EXPERT CALLS NUCLEAR PROGRAM 'UNREALISTIC'

CY/60940 Sao Paulo O MUNDO DE SAO PAULO in Portuguese 24 Apr 60 p 43

(Buenos Aires) An expert of the FRG's Juelich Research Center, Peter Engelmann, said in Rio de Janeiro yesterday that the transfer of nuclear technology to Brazil is difficult, and that the Brazilian nuclear program is unrealistic--as are many other Brazilian programs--as far as it is intended initially to install one nuclear plant a year. In reality, he added, the Brazilian nuclear program has already decelerated due to the dearth of financial resources.

In proposing a review of the Brazilian nuclear program, former NUCLEIRAS (Brazilian Nuclear Corporation) Director Joaquim de Carvalho said that the development of nuclear technology should have a well-defined objective and should proceed at a slower pace than that envisioned when it was believed that the country's hydroelectric potential was under 100,000 mw. Now the situation has changed because the country's hydroelectric potential may be as high as 13,000 mw, Carvalho added.

The FRG expert showed concern over the deceleration of the Brazilian nuclear program. In his opinion, a program cannot be accelerated and then decelerated, because the latter move requires the training of new technicians and engineers, and their training is costly.

CSO: 3100

## PHYSICIST CHARGES NUCLEAR PROGRAM HAS MILITARY AIM

Rio de Janeiro JORNAL DO BRASIL in Portuguese 27 Mar 80 p 22

[Text] Brasilia--"The nuclear program has a military objective and within 10 years Brazil will have the capability to build the atomic bomb," former navy captain and nuclear physicist Antonio Didier Barbosa Vianna yesterday told the senate investigating committee that is investigating the Brazilian-German nuclear agreement.

"When I read the agreement for the first time I became convinced that there was great military support. President Geisel was fully supported by the High Command when he signed the agreement with Germany," he added. Captain Didier, 36, was the builder of the Argonauta research reactor in 1960, which is still operating today in the Nuclear Engineering Institute (IEN) in Rio.

He believes also that the United States and the Soviet Union are fully aware of that and are doing everything to prevent Brazil from "taking additional steps to an autonomous nuclear program." Citing a study ordered by the U.S. State Department, he declared that the United States has succeeded in boycotting all efforts made by Brazil in that regard. As an example, he included the Thorium Group which, according to him, was dissolved at the demand of the United States; the Military Engineering Institute (IME) project to produce heavy water; the Pocos de Caldas plant, which was deactivated for 10 years; and the Brasilia-German nuclear agreement itself, the most sensitive part of which, namely the transfer of technology, is precisely the most deficient.

Antonio Didier, who was educated in the United States together with Prof Hervasio Guimaraes de Carvalho, accused the president of the National Nuclear Energy Commission (CNEN) of being "an agent of American nuclear interests infiltrated into the Brazilian program." According to him, Professor Hervasio always sought to destroy any national effort to obtain autonomous nuclear technology. He also accused the former chairman of the commission, Prof Marcelo Damy de Souza Santos of defending the same interests: "Immediately after he assumed office, the first thing Damy did was to order the deactivation of the Pocos de Caldas uranium treatment plant and to order the termination of the Argonauta project."

He explained that the construction of the reactor was not halted only because the company he headed at that time, which was responsible for its construction, held out for six months without receiving a single order. He said that even so the project was saved only because he personally sought out President Jânio Quadros to explain the problem and then "Dany was scared and began pressuring." He believes that the closing of the Fozes de Caldas plant is very symptomatic "because with no uranium available, no nuclear program could be carried out, nipping the thing in the bud."

Antonio Didler also believes that the Brazilian Nuclear Corporation (ENCLIBRAS) Heavy Equipment Corporation (NUCLEP) is a white elephant and was built without consulting national private heavy industry and was an excellent deal for German industry. "The Germans furnished an infinite number of machines to NUCLEP. If only the critical machinery had been purchased, NUCLEP would have spent only some \$100 million instead of \$300 million in the construction of its plant."

He disagrees with the argument used by NUCLEP in installing the factory that national industry does not have the tools necessary to build nuclear components. "If it did not have them, it was because there was no market; once the market was created the industries immediately equipped themselves." In the opinion of the deponent, NUCLEP is a deal planned by the German Krupp company. "The NUCLEP factory is an absurd deal from the nuclear point of view because it will only serve to manufacture equipment for PWR-type plants. When we enter the era of breeders, around the year 2000, the factory will no longer serve any purpose in the program because that type of reactor does not use pressure vessels and its heat exchangers are practically conventional components."

He believes that when the NUCLEP factory is deactivated for the nuclear program, Krupp will use those installations to manufacture other equipment. He added that NUCLEP would pay for itself only if Brazil were to build 30 to 60 nuclear plants of the PWR type. "And I doubt very much that this will happen because I have just attended a discussion with the president of the Brazilian Electric Power Corporation (ELETROBRAS), Mauricio Schulmann, and I learned that the company is not considering the installation of any new nuclear plant before 1995."

The deponent believes that it is uneconomical to generate electric power with the reactors of the type Brazil is building "because we still have a large hydroelectric potential and the cost of any hydroelectric plant, even the most distant ones, is at least half that of a nuclear plant." Even so, he said he was not against the original program for the construction of eight nuclear plants under the agreement with Germany "because I thought the intention was to produce plutonium for a future program of rapid-breeding reactors, even though only four plants would be enough for that."

The former navy man defended the position of India and suggested that Brazil conclude a nuclear agreement with that country. "While Brazil makes decisions of a country that counts its pennies. Nevertheless, that country today is completely independent in terms of nuclear technology and is already irradiating thorium, of which it has a large supply, and producing Uranium-233, which is the best detonator for the hydrogen bomb."

**NUCLEBRAS SAID TO GIVE FRENCH FIRM CONTRACT PREFERENCE**

**Charge Denied**

**Sao Paulo O ESTADO DE SAO PAULO in Portuguese 2 Apr 80 p 5**

(Text) Rio--The management of the Brazilian Nuclear Corporation (NUCLEBRAS) released an official note the day before yesterday in an attempt to reply to charges that the company had favored the French firm Pechiney Ugine-Kuhlmann in the competitive bids for engineering services for the *Pocos de Caldas* complex. Without presenting documentation, the NUCLEBRAS press office distributed the communique after 2100 hours, making it difficult to be used by the majority of the newspapers. The drafting of the note utilized the services of several persons assisted by the president of the company, *Paulo Nogueira Batista*. The delay was caused not only by the need to gather the necessary data but also because of the various modifications in the text, which was rewritten several times.

The issuance of official notes without a system of dialog with the press for greater clarification is already a normal procedure adopted by the company. The president of NUCLEBRAS speaks only through official notes or when called by the congressional investigating committee. His other press interviews, which are quite rare, are held only after much pressure by the press and the intervention of the Ministry of Social Communications.

In its edition of 9 August 1979, in the report under the caption "NUCLEBRAS Imports What IPEN (Energy Research Institute) Already Has," O ESTADO had already revealed a strange contract between the state company and Pechiney for supplying Brazil with uranium hexafluoride, a gaseous substance essential in the uranium enrichment process. According to the report, in so doing, NUCLEBRAS was "bypassing, either through forgetfulness or for reasons more political than technical, the IPEN of the University of Sao Paulo, which had developed that technology several years ago."

**Note Attempts to Clarify Competitive Bids**

Following is the text of NUCLEBRAS' note:

With regard to the report in some newspapers on 28 March 1980 with reference to the alleged favoring of the French company in the competitive bids for services in the mining-industrial complex of Poços de Caldas, NUCLEBRAS wishes to clarify:

- (A) The engineering of the process of beneficiation of the uranium ore in Campo do Cerrado (C-09) in the Municipality of Poços de Caldas, Minas Gerais, was developed by NUCLEBRAS in its Mineral Engineering Department;
- (B) For the engineering of the basic project of a mine-plant complex intended for the production of the uranium concentrate, NUCLEBRAS had to resort to foreign firms since no project of that kind had been carried out up to that time by any Brazilian company;
- (C) In a preliminary survey, 36 firms were consulted for purposes of drawing up a register with a view to identifying the technical capability of each firm in the areas of project engineering of uranium mines and plants;
- (D) Of the 36 companies, 10 were preselected in a first stage and each was sent information about the scope of the work to be eventually contracted;
- (E) After the evaluation of the replies, four companies were selected: Fluor Utah of the United States, Pechiney Ugine-Kuhlmann of France, Kilborn of Canada and Arthur G. Mc Gee of the United States.

In order to examine the respective technical bids a competitive bidding committee was formed composed of lawyer Leopoldo B. Bourgeard, economist Mauricio Pereira Bastos, geologist Carlos Henrique Cristaldo Azuaga, chemical engineer Eduardo Calmon Costa, chemical engineer Hernani Lopes do Amorim, and economist José Carlos Pinto de Carvalho.

The committee analyzed and discussed the bids received, reducing the selection to only three firms which demonstrated more recent experience in the uranium area: Fluor Utah, Pechiney and Kilborn, which were asked for cost estimates for the following services:

- (A) Review and evaluation of geological, mining and process data;
- (B) Conceptual and basic engineering of the project;
- (C) Economic analysis and budget of the project;
- (D) Technical assistance for detailed engineering, purchasing, construction and beginning of operation.

The prices presented were: Fluor Utah, \$3,129,500; Pechiney \$2,834,332; Kilborn \$2,202,860.

Fluor Utah, suggested as the first choice because of its technical capability held its prices, which were the highest, during the negotiations. Pechiney, the second technical choice, in addition to offering the second best price, lowered its costs to \$2,612,298. Kilborn, the last technical choice, held its prices, the lowest.

The classification according to technical capability exclusively did not imply the definitive preference of the committee for one of the three companies. So much so that it is recorded in the minutes of the meeting: "It was established that the final decision on the firm that would be contracted would be taken only after direct negotiations by the members of the competitive bidding committee with representatives of those firms."

Having evaluated the two aspects, the technical aspect and costs, the committee indicated as the most balanced bid that of Pechiney, the cost of which was higher than that of Kilborn but which presented better technical capability compared to the latter and the advantage that the company was already familiar with the characteristics of the Pocos de Caldas ore. According to the committee, despite the lower costs of its project, Kilborn had little familiarity with the specific problems of Pocos de Caldas, which could mean an underestimation of costs in the bid presented. Of the three firms, Kilborn was the only one not to heed the invitation of the committee to visit Pocos de Caldas.

The difference of \$1,508,068 between the contract signed and the bid presented in the competitive bidding refers only to an optional clause if NUCLEBRAS were to opt for a detailing of the project in the event that the mining in Pocos de Caldas were underground. The clause was included to guarantee a price that would serve as the pattern in the case of an option for underground mining. The difference did not materialize inasmuch as the mining will be of the open-pit type as can be verified at the site, where 29 million cubic meters of a total of 85 million cubic meters have already been excavated, the respective detail project having been entrusted to the Paulo Abib Engineering Corporation.

NUCLEBRAS deeply regrets the repeated publication by some press organs of tendentious reports that do not contribute in any way to correctly informing the public. In this specific case, the subject of the present explanation, a partial transcription of company documents obtained in an irregular manner were used in order to create an atmosphere of dissension with regard to the execution of the Brazilian nuclear program. Some newspapers even confused the contracting of Pechiney for the basic engineering of the Pocos de Caldas mine-plant complex with the process of contracting the same company for the basic engineering of the plant for the conversion of uranium concentrate into UP-6 to be built in Resende in the state of Rio de Janeiro.

As has been demonstrated, the alleged favoritism for Pechiney did not occur, much less was it paid double what it quoted in the bid which won the competitive bidding.

With reference to UF-6 also, it is essential to differentiate between: (1) the competence already acquired by the IPEN of São Paulo in terms of the process which still needs to be developed on a demonstration scale, according to the agreement recently signed between the Ministry of Mines and Energy and that Institute, and (2) the technology of basic engineering for immediate execution of the project on an industrial scale. That is the technology that NUCLEBRAS was authorized by the government to purchase abroad after consulting with all interested organs. Therefore, the report to the effect that NUCLEBRAS has signed that contract secretly without the knowledge of the government is completely unfounded.

NUCLEBRAS takes this opportunity to make clear that "there is no negotiation underway with Pechiney for the signing of a protocol aimed at the joint exploitation of the ore of Itatiáia in Ceará. It is considering only the technical assistance of that company for evaluating the process NUCLEBRAS is developing aimed at recovering uranium associated with phosphate. That technical assistance is perfectly compatible with the agreement signed by NUCLEBRAS and the PETROBRAS Fertilizer Company (PETROFERTIL) on the technical-economic feasibility of mining the phosphate and uranium in Itatiáia."

#### Company Does Not Prove There Was Reduction in Costs

In issuing its official note in Rio the day before yesterday to attempt to clarify the accusation that it had favored the Pechiney Ugine-Kuhlmann firm in the competitive bidding for supplying engineering services for the Pocos de Caldas complex, NUCLEBRAS did not present any documentation proving that the French company had reduced the costs presented in the earlier bid.

Similarly, NUCLEBRAS did not reveal the document of the competitive bids committee deleting the name of the American firm Fluor Utah, declared the unanimous winner at the meeting of 26 April 1976. The committee finally decided after further meetings with representatives of the three competing companies, during the month of May, to replace Fluor Utah with the Canadian Kilborn Engineering without explanation. The Pechiney firm, previously chosen as the second choice by five of the six members of the committee ended up winning the competitive bidding inasmuch as Kilborn was weaker and Fluor, the highest quoted, has been eliminated.

According to NUCLEBRAS, the difference of \$1,508,000 between the contract signed in the amount of \$4.12 million and the second bid of \$2,612,000 presented by Pechiney refers to an optional clause in the event that NUCLEBRAS were to opt for detailing of the project if the Pocos de Caldas operation were underground. But the clause was not used because mining will be of the open-pit type. It is known, however, that NUCLEBRAS has been negotiating with Pechiney for some time for an additional credit for other services in Pocos de Caldas which would be covered by the funds established in this clause for underground mining.

The NUCLEBRAS note states that after analyzing the technical and cost aspects of the three companies, Pechiney, Fluor Utah and Kilborn, the committee selected Pechiney's bid as the most balanced and considered Kilborn, with lower costs, to be quite unfamiliar with the specific problems of Pocos de Caldas, which could mean an underestimation of costs in the bid presented, since it was the only one that did not heed the invitation from NUCLEBRAS to visit Pocos de Caldas.

However, NUCLEBRAS does not present the minutes of the competitive bidding committee meeting containing this determination. The note likewise does not cite the reason for elimination of Fluor Utah, previously regarded as the winning company in the competitive bidding. The final decision of the competitive bidding committee, which replaced Fluor with Kilborn, considers that the Pechiney project is higher in cost than Kilborn's but that the latter company has little familiarity with the material to be beneficiated. Therefore, it concluded by convening Kilborn and Pechiney for negotiations aimed at a definitive contract with the participation of national enterprise.

According to the decision of the competitive bidding committee, it is understood that Fluor was eliminated because it presented the highest number of hours allocated. However, the chairman of the committee, economist Mauricio Bastos, on opening the first meeting emphasized that "the idea would be to select a foreign company with extensive experience in the area of project engineering on uranium ore treatment installations, which would be entrusted with carrying out the 'engineering' and the detailing of the project." At the following meeting, he reiterated the criteria that should be used in the analysis of the projects, namely, proven technical capability, the time required for execution and, finally, costs. At the meeting on 26 April 1976, the six members of the competitive bidding committee voted for the Fluor project, on the basis of the technical capability of the company and in accordance with the priority established for the analysis of the bids. The same committee selected Pechiney as the second choice and Kilborn was thus supposedly eliminated. But the final decision eliminated Fluor and decided in favor of Pechiney and Kilborn, with an inversion of priorities without presenting any justification for the modification.

In addition, the highest costs of the Fluor project were linked to the fact that the company was better prepared to carry out the project, having presented more realistic costs and greater detailing.

This strange competitive bidding was the first irregular behavior to favor Pechiney. Later, in 1978, the French company was contracted to supply the basic engineering technology for the hexafluoride conversion plant in Resende without opening it up to international bidding, and only a market survey was done. In addition, the IPEN of Sao Paulo was already developing the same process.

In its official note, NUCLEBRAS states that the technology researched by IPEN still requires development on a demonstration scale and the possession of basic engineering technology. NUCLEBRAS alleges that there was not time, when the contract was signed with Pechiney, for IPEN to develop the process. In the meantime, with the successive delays of the nuclear program, the time-table anticipated by IPEN would fully meet that program.

The last revelation regarding NUCLEBRAS' negotiations with Pechiney occurred last week when the conclusion of another protocol of intent was reported, this time for exploitation of the phosphate and uranium deposit in Itataia in Ceara under a risk contract. Recently, NUCLEBRAS had already signed an agreement with PETROFERTIL for exploitation of the deposit, inasmuch as the uranium appears in association with phosphate.

According to NUCLEBRAS, it is only considering technical assistance on the part of Pechiney for evaluation of the process. "That technical assistance is perfectly compatible with the agreement signed by NUCLEBRAS and PETROFERTIL on the feasibility of mining the phosphate and uranium in Itataia," the company said in justification.

#### Pechiney Said Favored Twice

Sao Paulo FOLHA DE SAO PAULO in Portuguese 28 Mar 80 p 7

(Article by Ana Maria Mandes)

(Text) Rio--The president of NUCLEBRAS, Paulo Nogueira Batista, favored the French group Societe du Cycle de L'Uranium Pechiney Ugine-Kuhmann twice. The first time by signing a contract with that group on 13 August 1976 for implementation of the basic project of the Pocos de Caldas industrial complex, in the amount of \$4,809,000, when the real amount of the contract stipulated previously was \$1,834,000. The French group, therefore, was benefited by an increase of \$1,947,000 (as published).

The other favor that precedes the contract was the irregular and arbitrary selection of the Pechiney Ugine-Kuhmann group by the president of NUCLEBRAS, contrary to the opinion of the competitive bidding committee comprised of six NUCLEBRAS experts, who had unanimously selected the American firm Fluor Utah, Inc., to carry out the Pocos de Caldas basic project.

All of those facts have been known since last year to Minister of Mines and Energy Cesar Cale, the National Intelligence Service (SNI) and other security agencies.

#### The Bidding

The (prequalification) contracts with a view to competitive bidding for selection of the firm that would carry out the basic project of the plant for the production of uranium concentrate (yellow-cake) of the Pocos de

Caldas industrial complex (which also includes the mine, a sulphuric acid factory and auxiliary installations) were initiated in June 1974. Of the 56 firms contracted for prequalification, 10 were requested to present bids, among them, six American, three Canadian and one French.

On 26 March 1976, through directive No 012, the president of NUCLEFRAS named six experts to the competitive bidding committee charged with analyzing and judging the bids: lawyer Leopoldo B. Bouéard, economists Mauricio Ferreira Bastos (chairman) and José Carlos Pinto de Carvalho, the geologist Carlos Henrique Cristaldo Azuaga and chemical engineers Eduardo Calmon da Costa and Hernani Lopes do Amorim (the current president of the IPEN), the latter later replaced because of vacation by engineer Expedito Ribeiro de Resende.

The criteria established for making a decision were proven technical capability, the time required for execution of the project and the price of the services, the first being considered the most important in the opinion of the members of the committee because it was "the first project of its kind in Brazil, a technically difficult project both as to mining (which was included in the project) and treatment (beneficiating of the uranium ore), according to the minutes of the second meeting of the committee held on 7 April 1976. With the inclusion of mining, it was also determined that "the previous experience of the firm in integrated mine-plant projects should be taken into consideration."

Fulfilling those conditions, three firms were selected from which detailed information would be requested regarding the costs of services and conditions of payment: Kilborn Engineering Ltd of Canada, Fluor Utah, Inc., and Pechiney Ugine-Kuhlmann.

#### Fraud

According to the minutes of the meeting of 26 April 1976, the six members of the committee unanimously selected the Fluor Utah firm as the most qualified for carrying out the project due to its "greater experience in integrated mine-plant projects, the incorporation of new technologies and advanced projects, its knowledge of geology and mining and the fact that it was actually carrying out major projects." Five of the six members selected Pechiney as the second choice and one voted for Kilborn. The meeting began at 1415 and closed at 1630.

In the final decision signed by the six members in which it was decided that only two firms be "summoned on a priority basis for negotiations aimed at a definitive contract," the name of Fluor Utah was exchanged for that of Kilborn Engineering Ltd. and the name of Pechiney Ugine Kuhlmann retained. One of the possible explanations--in addition to pressures on the committee--that might justify the fact that six persons signed a document that simply contradicts a unanimous decision taken by them after innumerable meetings is that the page of the final decision which contained the names of Fluor Utah Inc. and Pechiney Ugine-Kuhlmann was replaced after the members of the committee signed the document.

The final decision consists of three pages: the first contains the "whereas," the second, the names of the firms, and the third only the signatures of the members of the committee.

#### Higher Price

According to the chart summarizing the estimates of costs of engineering services, in May 1976 figures, drawn up by the members of the committee through earlier contacts with the representatives of the three firms, the expenditure [line apparently missing] Pechiney is the highest of all, \$2,697,632. Pechiney's man/hour unit cost is the highest, \$69.90 which means that if there is a delay in the project, as is occurring, the losses will be greater. Fluor Utah's overall price, adding the fixed and variable portions, is the highest, \$3,129,500, with its man/hour unit cost the lowest of all, \$31.30, and its volume of expenditures in Brazil being the highest, \$637,900. The amount of expenditures in Brazil presented by Pechiney is the lowest of the three firms, \$136,700, and the total value of the project is \$2,834,332. Kilbom presented the lowest overall price, \$2,202,860, expenditures in Brazil of \$430,470, and a man/hour unit cost of \$45.50.

The final contract signed by NUCLEBRAS with Pechiney in August 1978 represented another of the irregularities that have occurred in the bids for the implementation of the Pocos de Caldas basic project.

The fixed and variable portions of the contract are expressed in French francs: the first of the fixed portions, pertaining to the basic project of review of the stages of the process already carried out by NUCLEBRAS, 324,285 francs; and the third pertaining to the basic project of the beneficiating unit, \$3,695,488 francs.

#### National Technology Disdained

Favoring of the French Pechiney Ugine-Kuhlmann group was not limited to the contract for supplying the basic project for the Pocos de Caldas plant but extended to another contract signed on 22 December 1978 for supplying basic engineering and transferring know-how for the plant to produce uranium hexafluoride (conversion of yellow-cake into gas, the stage prior to enrichment) of the Resende industrial complex.

Engineer Hernani Amorim, the current president of the IPEN of Sao Paulo and one of the members of the competitive bids committee that judged the bids for the Pocos de Caldas basic project, charged two days ago that NUCLEBRAS signed the contract for the hexafluoride plant with the Pechiney group despite the fact that the IPEN had developed this technology and had offered it earlier to NUCLEBRAS. In addition to that, the choice of Pechiney to carry out the basic project for the hexafluoride plant was done without competitive bidding and was merely the result of international surveys, not clarified, carried out by the president of UNCLERRAS, Paulo Nogueira Batista.

When he participated in the committee on competitive bids for Pocos de Caldas, engineer Hernani Amorim not only stated at the first meeting held on 6 April 1976 that the timetable was tight (the plan for the uranium concentrate plant to go into operation on 1 January) but he advocated that the basic engineering of the project should be national and that the foreign firm be given only consulting status, pointing out that this had been the guideline he had received from the director of mineral resources, John Forman. It happens that the guideline was changed because the chairman of the committee, Mauricio Bastos, declared at the meeting that he had also received the order from the NUCLEBRAS management to contract with a foreign firm for supplying basic engineering services. At that time, IPEN was developing the technology for the production of hexafluoride but NUCLEBRAS alleged that the schedule for implementing the project would be jeopardized.

It so happens that the contract signed with Pechiney for the hexafluoride plant is not covered because thus far it has not been approved by the National Industrial Property Institute nor by the foreign ministries of Brazil and France, which means that it is not valid. Nevertheless, Fr 4 million have already been committed without contractual coverage.

#### NUCLEBRAS, Main Obstacle

Sao Paulo O ESTADO DE SAO PAULO in Portuguese 6 Apr 80 p 3

[Text] The revelations of the preference given by NUCLEBRAS to the French Pechiney firm for services in the Pocos de Caldas mining-industrial complex, as well as the contract for the basic engineering of the plant for the conversion of uranium concentrate into UP-6, which was being developed by the IPEN of Sao Paulo, assume more and more importance inasmuch as the official explanations provided by the Brazilian company are vague and it has not presented any documentation that nullifies those presented by the press. On the contrary, the NUCLEBRAS note digresses into comments and criticism of the press, not explaining in a convincing manner why another company, Fluor Utah, which had received the unanimous support of the competitive bidding committee, was rejected.

This fact, together with countless other irregularities that involve the way the Brazilian nuclear program is being carried out--in the area pertaining to the construction of power plants as well as in uranium research and the fuel cycle--only confirms that its implementation is in the hands of people incapable of carrying out their mission, or what would be more serious, people who are utilizing their positions for other purposes. As a matter of fact, the whole Brazilian nuclear program today constitutes a confused tangle in which the clash between the agencies and companies involved in it simply show the impossibility of implementing it with the present structure.

Let us assume some hypotheses. First, let us grant that the extremely ambitious goal to build eight nuclear power plants by 1990 is physically

feasible. Let us assume also, simply for the sake of argument, that there are resources available to carry out that program estimated to cost at least \$30 billion. Even if it is possible to fulfill those targets, there remain a third basic and decisive one: the method adopted to achieve them. This is perhaps one of the most disturbing aspects of the Brazilian nuclear program to which the top officials of the republic only now appear to be directing their attention. If the goals by themselves are difficult and almost unfeasible because of the limitation of the timetables and the high cost, they become even more unfeasible in view of the methods adopted by NUCLEBRAS to achieve them. Playing companies against companies, casting aside experts, dispensing with national industry and national scientists, and signing dubious contracts approved in closed circles without any justification for maintaining secrecy since they are simple commercial transactions in which national security is not at stake, the management of NUCLEBRAS is becoming the main obstacle to the implementation of the Brazilian nuclear program. It has already erred in hiding the true Brazilian hydroelectric potential from the public, presenting inaccurate figures; it erred also in forcing the approval of a physically and financially unfeasible timetable. And it is erring even more now when it adopts unorthodox methods in the approval of contracts.

Vice President Aureliano Chaves, who heads the National Energy Commission, had already detected this problem when he declared that there is a great difference between the nuclear program by itself and the parallel contracts signed for its implementation. The first is a negotiable commitment between two countries; the second is a commercial contract between companies.

And it is precisely the secretive manner in which these parallel contracts are being signed that are jeopardizing the Brazilian program.

Basically and paradoxically, NUCLEBRAS today constitutes the main obstacle to the implementation of a realistic Brazilian nuclear program.

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**ANGRA-3 COSTS EXPECTED TO EXCEED \$3.1 BILLION**

Sao Paulo O ESTADO DE SAO PAULO in Portuguese 10 Apr 80 p 37

[Text] Brasilia--The President of Furnas Electric Power Plants, Licinio Seabra, announced yesterday during his deposition before the senate nuclear investigating committee that the total costs anticipated for the future Angra-3, which has not yet been initiated, are \$3.124 billion at December 1979 prices. The government estimate of expenditures for that same unit in July 1976 was \$1.298 billion. The financial expenditures have been computed in both cases although the expenses related to the first fuel charge are not included.

Replying to a question from Senator Dirceu Cardoso, Licinio Seabra also revealed that the average price per pile driven in Angra-2, also at December 1979 prices, was 3,026,124 cruzeiros, and that as of the end of last March, 1,176 of the 1,364 piles stipulated by the authorities in the sector have already been driven. The prices revealed by the president of Furnas are 1979 prices. He indicated that the readjustments for the first quarter of 1980 "are being determined and calculated" and will be revealed shortly.

**Hearing**

Although Licinio Seabra replied to all the questions that he was asked, the members of the nuclear investigating committee are still inclined to request hearings to check data from both Furnas and the Brazilian Nuclear Corporation (NUCLEBRAS). In the case of the latter company, the intention is much more concrete because the members of the senate investigating committee have received various charges against its president, Paulo Nogueira Batista, regarded, even in Brasilia government circles, as an official with an eroded image. The senate investigating committee is conducting a survey of the dismissals that have been occurring in NUCLEBRAS.

The president of Furnas told the senators that, in December 1979 prices, 14,766,531,811 cruzeiros have already been invested in Angra-2 and it is anticipated that a total of 87,866,980,000 cruzeiros will be spent by the conclusion of the project. According to Licinio Seabra, these figures

"do not include financial expenses and the first fuel charge." He revealed also that the anticipated prices per installed kilowatt for Angra-1 were, respectively, as follows: January 1971, \$510, construction period, 5 years; December 1979, \$2,000, construction period, 8.5 years. As for Angra-2, in July 1971 it was estimated at \$1,086, and an estimated construction period of 7 years; in December 1979, it was \$2,735 and an estimated construction period of 11 years.

The president of Furnas asked that "the inflationary effects on prices in national and foreign currency" as well as the extension of the construction periods be taken into consideration in all of those price differentials.

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#### ANTINUCLEAR DEMONSTRATION STAGED IN RESENDE

Rio de Janeiro O GLOBO in Portuguese 14 Apr 80 p 9

[Text] More than 2,000 persons participated yesterday in an antinuclear demonstration at Oliveira Botelho Square in Resende organized by ecological organizations of Rio and Sao Paulo in support of the local city government. Caravans of buses arrived in Resende from Rio, Sao Paulo and cities in Minas and Espirito Santo.

Artists performed between speeches, among them Moraes Moreira, Jorge Mautner, Luis Duarte, Luiz Barreto and the Workshop Theater Group of Sao Paulo. Messages were read from ecological organizations of Brazil and from abroad supporting the demonstration. One of them was from the National Environmental Protection Federation of Berlin and another from the Verbois Nucleaire of Switzerland.

The mayor of Resende, Noel de Carvalho Neto, was the first to speak. He said that since the beginning of his administration he had fought against the installation of a Brazilian Nuclear Corporation (NUCLEBRAS) industrial complex in Resende near the headwaters of the Paraiba River "because of the danger it represents to six million people who drink water from that river, including people in the state capital."

#### Against the Agreement

Deputy Jose Ferjat (Brazilian Labor Party for Rio de Janeiro), who also spoke, recalled that on various occasions in the Chamber of Deputies he had criticized the construction of nuclear plants in the country. He declared that the original investment anticipated for the installation of the plants was \$5 billion but it has already increased to \$35 billion.

Another speaker, Amazonas Senator Evandro Carreira said: "The demonstration is an eloquent expression of the ecological awareness that has brought people to the public square to declare that they do not accept the Brazilian nuclear plan as a solution for their energy needs." He indicated as viable energy alternatives the production of ethanol and methanol and the re-forestation of the Center-West and North.

The other speakers in the demonstration were physicist Luiz Pinguelli Rosa, who showed graphics and spoke about the danger of nuclear waste, and Deputy Marcelo Cerqueira, Councilman Mario Brandao, Deputy Jose Budes and the chairman of the Council for the Defense of the Amazon Region, Carlos Henrique Miranda.

The organizations that organized the demonstration set up little tents in Oliveira Botelho Square for the sale of T-shirts and plastic items of the antinuclear movement.

One of the manifestoes read at the demonstration, sent by the Protection Association of agulhas Negras and Environs, the Association of Protectors of the Bocaina Valley, and Ecological Action of Itatiaia, appeals to the authorities to "express themselves clearly and objectively with regard to a policy aimed at the defense of the environment." The manifesto suggests the creation of a Secretariat of Environment in Resende. In its conclusions, the manifesto refers to the nuclear issue: "so that posterity will not know Resende as the atomic heart of Brazil."

#### To the President

At the conclusion of the demonstration, a message was read which the Society of Enemies of Pollution of Sao Paulo will send to the president of the republic. The organization recognizes that a country as large as Brazil cannot fail to master nuclear technology "even considering the controversy regarding its benefit to the community." However, it asks that absolute priority be given to alternative sources of energy recognized to be safe, that only three nuclear plants be built and that they be turned over to the Brazilian scientists so that they may analyze the costs and benefits of that form of energy." And that after the conclusions of the scientists are known, "a plebiscite be held on the use of nuclear energy."

The demonstration began at 1100 hours and ended at 2000 hours, when the participants paraded through some nearby streets carrying banners with slogans against nuclear energy. The speeches at the demonstration were recorded by Berlin radio.

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FRG, ITALY SELL NUCLEAR MATERIAL TO IRAQ

Hamburg DER SPIEGEL in German 28 Apr 80 p 35

[Article: "Hot Cell"]

[Text] The United States and Israel are worried about uranium exports to Near East crisis countries. German firms are also participating in these deliveries.

Bon's Minister for Research and Technology Volker Rauff had to listen to bitter complaints. Last March, Prime Minister Menachem Begin complained to his German guest about Israel's outrage over European Community member Italy's export of nuclear materials to Iraq. These deliveries, said Begin, would enable the Arab enemies to build atomic bombs.

For lack of information, Rauff was unable to reply. His impression at the time was that Begin's suspicions were off the top of his head.

But the suspicious Israeli was not far wrong, and Italy was not the only country involved. Rauff knew nothing about this at the time, but Israel knew from U.S. intelligence reports that Italy, despite the growing Near East crisis, had been selling nuclear technology to Iraq on the basis of a 1978 agreement. A report in the NEW YORK TIMES, based on government sources, stated that this material is "suitable for the production of weapon-grade plutonium."

Following on the heels of German and French nuclear business deals with Argentina, Brazil and Pakistan, this Italian-Iraqi deal was just additional proof that the business-minded European atom managers had no concern for U.S. worries about more and more countries gaining nuclear arms capability. Even though Iraq ratified the nuclear proliferation treaty and submitted to the controls imposed by the International Atomic Energy Agency (IAEA) based in Vienna, the Americans have little doubt that Baghdad might siphon the material from Europe.

The Americans were not the only ones scared by the action of the Italian government. The IAEA experts in Vienna and officials of the European

Community's Euratom atomic authority, who are charged with registering and controlling all exports from community states, were disturbed as well upon hearing the news from the United States.

In Luxembourg, Euratom surveillance and security chief Hans-Walter Schleicher recalled that the 4 tons of uranium ore and 6 tons of refined, i.e. enriched uranium had been registered for delivery by Italy to Iraq.

The Eurocrat became agitated. During the middle of March 1980 he had failed to send to the Vienna controllers his December report on uranium deliveries to Third World countries. On the basis of these reports the Vienna agency knows whom it has to watch.

Schleicher immediately contacted the Italian uranium exporter, the governmental research organization CNEN (National Committee for Nuclear Energy). He asked its director for international activities, Albonetti, whether by any chance American criticism referred to that uranium shipment. The Italian reassured him: the Washington indictment was not directed at uranium fuel, but rather at the export of such armament material as "glove boxes."

What Albonetti called glove boxes are in effect so-called hot cells. Atomic laboratories use these concrete boxes with windows for handling radioactive substances by remote control.

United States officials suspect that the Iraqis could use these cells to make plutonium from other nuclear substances. The NEW YORK TIMES even quoted a U.S. State Department expert who stated that the Italian facility was "sufficiently large to enable Baghdad to manufacture a sufficient amount of plutonium to build an atomic weapon within 1 year," a statement which was vehemently denied in Rome.

Euro-official Schleicher was satisfied with this explanation. Whatever the Iraqis chose to do with the Italian uranium by using the hot cells he did not consider his business. Nor was the Euratom manager at all disturbed by an additional detail he learned in Italy. According to Schleicher, the 10-ton delivery made to Iraq in December had been stored in Italy for only a few days. The FNG had been its actual source.

The grayish-black powder, contained in 20-liter buckets which, in accordance with IAEA regulations, were themselves enclosed in wooden boxes, had been shipped by rail on 26 November by the Hanau firm Nukem and was shortly thereafter trans-shipped from Rome to Iraq.

Nukem manager Peter Jelinek-Fink energetically denies having known the final destination of the Nukem boxes. Jelinek-Fink told DER SPIEGEL that

he "had never before heard" that Iraq was to be the ultimate user. His firm, he said, had made the shipment to an Italian firm, Bnlia-Techint, and, as far as he knew the final user would be CNEN. And that was what had been reported to Euratom.

It is a fact that Bonn's export controls, which are strict in comparison with those of other European Community countries, are easy to circumvent. Assuming that Nukem had wanted to export direct to Iraq, it would have had to apply for a permit to Bonn in addition to informing Euratom. The final decision on whether a uranium shipment from Germany to a crisis area like Iraq should be permitted would then have been made by the Ministry of Foreign Affairs.

Now the chairman of the parliamentary investigative commission for future nuclear power policy, SPD Bundestag deputy Reinhard Ueberhorst, wants to urge the government to plug loopholes of this type, even if this were to result in economic disadvantages for the German atomic industry. Ueberhorst is convinced that "worldwide controls are entirely insufficient."

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FEDERAL REPUBLIC OF GERMANY

URANIUM MINING IN BAVARIA OPPOSED BY ENVIRONMENTALISTS

Munich RUHRDEUTSCHE ZEITUNG in German 12/13 Apr 80 p 24

(Article by Peter Schmitt: "Uranium With Much Power of Attraction")

(Text) Regensburg, 11 April--In just 2 years large-scale commercial mining of uranium ore will be undertaken in Bavaria for the first time. Chairman of the Board of ESSO AG, Wolfgang Oelme, can take note of this report. This energy concern has made a strike in Grossschloppen in the Munsiedel district. Uranium exploration in East and North Bavaria has been pursued by other companies for the past 3 years with large expenditures of funds. The first conflicts with conservationists and opponents of nuclear power have already occurred.

Will there soon unfold large-scale organized protests by nuclear-power opponents in East Bavaria whose target projects are not planned power plants but the drilling sites of the energy companies which are searching for uranium ore in Oberpfalz, Oberfranken and Lower Bavaria? The Conservationist Union in Bavaria announced through its authorized agent in North Bavaria, Hubert Weiger, that an environmental impact hearing will be demanded for every single drilling site. This announcement also expressed an opinion on a public statement by the Ministry of Environment in which State Minister Dick had taken a position designed to defuse the situation: "The exploration, removal and refinement of radioactive minerals, which includes uranium, is comprehensively included in the protection and control system of the radiation protection ordinance."

This interpretation is in no way shared by the organized conservationists. Besides the destruction of the landscape by the hauling system they also fear health dangers for the people involved with uranium mining and, in addition, inestimable later damage to the populace of the entire area. The Economics Ministry and the energy companies, according to Weiger, have to be prepared for stubborn resistance when it comes down to mining the uranium deposits in Bavaria.

The economic production of uranium ore is not far off, however, at least in Oberfranken. Esoo Ore AG in Hamburg, one of the five firms which was recently granted an exploration authorization in Bavaria by the Munich Economics Ministry, announced that commercial mining could begin in about 2 years in Grossschloppen in the Wunsiedel district. Esoo AG has a substantial lead as contender for exploitation of deposits of radioactive rock in Bavaria. This is not treated as a secret by the mining experts in the Economics Ministry. The official in charge of mining, Emil Hadamitsky, considers, however, the announced schedule to be a very optimistic prediction and would prefer to add another half year to it.

In regard to radiometric surface exploration and test drilling, the geologists are out not only in Grossschloppen, where a test hole is now being sunk, but in other locales also. In the Gärnitz area of Oberpfalz, the Saarberg Works is busy underground searching for uranium ore. In the Bavarian forest, where mainly BP and the Uranium Company Frankfurt are engaged, prospecting has reached a position about 2 years behind that of Esoo.

In spite of the calmness evidenced by the firms and concerns interested in uranium mining, as they more than conservatively assay the Bavarian deposits, in reality something akin to uranium fever has broken out in East Bavaria. The map of the uranium ore strikes in Bavaria as recorded in the new raw materials program of the Ministry of Economics promises quite a lot indeed: At more than 80 strike locations strung like pearls on a string along the base of the granite mountain which marks the eastern boundary of Bavaria, uranium minerals have been identified. But, of course, the economics of recovery can vary greatly between the individual deposits.

#### The Signs Have Changed

The question of exploitation has been evaluated during the past 2 years under quite different conditions than prevailed in the 1950's when the first large-scale organized prospecting and exploration for uranium took place in Bavaria. The low potential for industrial application of natural uranium which existed up to the beginning of the past decade damped the profit expectations of the firms involved with exploration at that time. The companies--13 in all--which prospected for uranium ore in Bavarian soil during the period 1950 to 1973 did so only under the proviso of substantial public financial aid. After the price for a kilogram of natural uranium climbed over the approximate range 15 to 45 dollars from 1973 until today, the quest appears considerably more lucrative for the energy production companies in 1980. Presently, underground vein deposits which exhibit a uranium content of 0.2 percent and a total deposit of 3,000 tons of uranium concentrate are considered worthy of mining. The uranium prospectors have multiplied their efforts and are ready to take a considerably higher exploration risk now than first 15 years ago. The Ministry of Economics figures that DM 25 mi. was expended on exploration during the period 1956 to 1972. However, in 1977 and 1978 alone, about DM 15 million was invested in uranium prospecting in Bavaria.

With this fortunate turn for the economy certain other developments are being brought to a strip of Bavaria which until now has remained generally untouched by the entire nuclear energy problem. When, in the course of 1978, the BP and Frankfurt Uranium Company prospectors converged on the Bavarian Forest and with official authorization set up their drilling rigs, even in the environs of the national park, the Conservationist Union and the National Park Administration became alerted to the plan. The protests at that time were directed primarily against damage to the protected landscape caused by the drilling rigs. These protests were successful at least in denying the prospectors access to the central region of the national park. However, in the nature park which joins the national park reserve on the south, the drilling rigs could be set up to blend in readily with the Bavarian forest pines.

The statement of a BP press spokesman in Hamburg to the SUEDDEUTSCHEN ZEITUNG that an agreement has been reached with the nature protectionists concerning drilling in the Bavarian Forest was strongly denounced by the business manager of the National Association of Nature Protectionists, Helmut Steininger. "We oppose without compromise any drilling in the central and interior portions of the Bavarian Forest. Here we are dealing with landscapes worthy of protection in which assaults of this type cannot be tolerated." In addition, the nature protectionists consider an environmental impact hearing for every drilling site as indispensable and demand complete public disclosure concerning the extent of the proposed haulage and the resulting dangers.

This disclosure was forthcoming from the State Ministry for Land Development and Environmental Questions. The ministry's bulletin number 37 on the topic of nuclear energy bears the title "Uranium Mining in Bavaria." In addition to the statement already cited concerning basic safety control of all existing processes connected with the production of radioactive material, health-endangering exposure due to uranium mining will be expressly forbidden.

Of course, the nature protectionists in North Bavaria will not swallow this tranquilizer. The National Association of Nature Protectionists is determined to ally with the nuclear opponents' movement in this issue. It demands the expert radiological findings of the Ministry of Environment before any uranium is brought to the surface. According to environmentalist Weiger, the Karlsruhe studies concerning danger to the populace in the area of the mining sites resulting from radon loading of the food cycle would have been completely overlooked. The consequence of such neglect would be not only immediate danger to health but also genetic disorders which would be discovered only much later on.

The ministry's information concerning protection of the uranium miners by general ventilation of the shaft installations is countered by the nature protectionists with information from the International Commission for Radiation Protection, which deems such measures to be inadequate. To the environmental protectionists, the explanations offered to date by the Ministry of Environment are only pacifiers which draw attention away from the real dangers.

FEDERAL REPUBLIC OF GERMANY

SPD GROUPS IN HESSEN, SCHLESWIG-HOLSTEIN OPPOSE NUCLEAR POWER

Hamburg DER SPIEGEL in German 24 Apr 80 p 8

[Article by Johann Jul: "Continuing the Antinuclear Course"--SPD Party Conferences in Schleswig-Holstein and South Hesse]

[Text] SPD party unit conferences continue to be preoccupied with nuclear power problems, as they were last weekend in South Hesse and Schleswig-Holstein.

The South Hesse district party conference, which elected Willi Goerlach as Rudi Arndt's successor by a large majority, was prepared for conflict by virtue of advance publicity. The agenda was indeed conflict-provoking. It dealt with energy policies of the Hesse Land government headed by Minister President Holger Boerner.

There were plans for a verbal condemnation of the Hesse head of government; but this did not materialize. What did come about were misgivings over the Boerner government's policies concerning the reprocessing plant matter; a certain aloofness.

By a large majority, the Land government was requested not to pursue its project for a Hesse reprocessing plant for burned out fissionable fuel elements. A much greater need was said to exist for finding alternative energy sources so as to gain time for researching the still unsolved problems of permanent storage of burned out fuel rods.

Evidence for the fact that the South Hesse delegates did not want open confrontation was the lack of a majority desiring the clause requesting Boerner to desist from his "pronuclear policy." Considerable credit for this must be given to the new district chairman, Willi Goerlach, who cautioned the delegates against impairing the minister president's leadership stature "through verbal kicks in the shins."

But the discussion about the construction of a reprocessing plant did not end at the Bischofsheim party conference. The next round is likely to be

initiated during the 10 May Hesse Land party conference in Friedberg. Originally, the Friedberg agenda called only for establishing the Land slate for the Bundestag elections. But at the present time, there is increasing demand in South Hesse as well as in North Hesse for providing clarification of the nuclear question in the Hesse SPD Land organization.

Holger Boerner continues to think that there will be a solution in favor of the reprocessing plant, even though this would not become a reality "either today or tomorrow". In his opening address, Holger Boerner took note "of the voices of concern; but they cannot relieve me of my responsibility for the future of our Land." Boerner was quite explicit in describing his position: "Inasmuch as we cannot obtain our energy supply from any other source, we must retain nuclear power as a viable option." The district party conference did not go along with this. Prior to 10 May, Holger Boerner will have to do a lot of explaining.

#### Schleswig-Holstein: Retreat From Nuclear Energy

The Schleswig-Holstein SPD Land party conference which nominated Federal SPD chairman Egon Bahr to head the Land slate for the Bundestag elections by an overwhelming majority, also dealt with nuclear policy matters. Klaus Matthiesen, leader of the opposition in the Kiel Landtag, urgently requested expansion of natural gas resources, central heating plants and coal fired power plants. Matthiesen accused the CDU Land government, headed by Minister President Gerhard Stoltenberg, of vainly trying to create a "tripartite coalition" consisting of the Schleswig-Holstein Land government, the Hamburg Senat and the Federal government in favor of a nuclear power plant in Brokdorf.

The delegates to the most northerly Land's party conference dealt in great detail with the problems concerning the reactivation of the Brunsbuettel nuclear power plant. They decided to make their agreement to the reactivation of this nuclear power plant on the lower Elbe River dependent upon the results of intensive discussions with the Stoltenberg Land government. Should the Land government refuse to install safety measures proposed by a SPD committee of experts, the SPD would in turn refuse its concurrence with reactivation. SPD Land Chairman Guenther Jansen, who is in third position on the Land slate for the Federal elections behind Parliamentary State Secretary Bjoern Engholm, emphatically informed the delegates that his party had not renounced the political objective of dispensing with nuclear energy.

The SPD Land party conference for Schleswig-Holstein issued a total of 20 safety requirements for Brunsbuettel. Among them were a reduction in iodine emissions; a dry run for the nuclear power plant, which has been shut down since June 1978, to determine its safety status; and a remote surveillance system independent of the plant's operator.

## DRAFT LAW ON NUCLEAR MATERIALS CONTROL APPROVED

Paris LE MONDE in French 25 Apr 80 p 11

[Article by A. G.: "In the Senate, Control of Nuclear Materials"]

[Text] The French Senate approved on Wednesday, 23 April 1980, the government bill on the control and protection of nuclear materials. At the proposal of the rapporteur of the economic affairs committee, Mr Noe (Socialist Party, Essonne), and with the agreement of Andre Giraud, minister of industry, the senators returned to the initial draft of the first article of the government bill and excluded from the jurisdiction of the law products from reprocessing operations so as to bring under the scope of the legislation only fissionable, fissional, or breeder products.

"This bill," the Minister of Industry noted, "applies to plutonium 239, uranium 233, uranium 235, and uranium 238. Different types of government workers will exercise controls, both technical and accounting, and special control provisions are planned for materials in the process of transportation." "The provisions of the EURATOM [European Atomic Energy Community] treaty," Andre Giraud concluded, "must be fulfilled for diplomatic and defense purposes. By granting the government the power to regulate and control the use of the various materials covered you will additionally make easier the pursuit of that nonproliferation policy which we like so much."

A communist amendment implying a challenge to the spirit of the EURATOM treaty was defeated by 205 votes to 85. Then the overall government bill was approved with the communist senators abstaining, the bill including some drafting changes approved or sought by the government.

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FRANCE

WORK TO BEGIN ON NOGENT NUCLEAR POWERPLANT

Paris LE MATIN in French 3 Apr 80 p 27

[Article by Jean-Marie Clavier]

[Text] The Nogent-sur-Seine power plant is off to a start. The "public utility" decision for the project was published in the JOURNAL OFFICIEL on 29 March, a Saturday. Theoretically, work may now begin without waiting any longer. Strangely enough, this project for a power plant located 100 kilometers from Paris, at the very gates of the largest human concentration of France, has not provoked the violent outcry that has attended other projects, at Plogoff or elsewhere. Here the campaign of the environmentalists has not had the impact it has had in other places. Yet there has been another form of opposition, a little too discreet, no doubt, but still carrying a certain weight. Within the administration itself some reluctance has been expressed. At the heart of these concerns is the problem of the water supply for the Paris region.

The Nogent-sur-Seine nuclear power plant is a big project. It is to be located on a 212-hectare site bordering the Seine and the Paris-Belfort railway, at the locality known as Araignettes-la-Prairie, but also at the interconnection of a complex network of high voltage power lines of 400,000 volts. This site does meet two of EDF's [French Electricity Company] priority conditions: first, to have a sufficient quantity of cold water--in this case, river water; secondly, not to be too far from the places where the energy will be consumed.

Thus, with its two units of 1,300 MW functioning simultaneously and when it has reached its normal operating speed, with an annual production of 7 billion kwh, the Nogent power plant

will be able to supply the electricity needed by the Champagne-Ardennes region and part of the needs of the Ile de France region. According to official estimates, these needs will double between now and 1990.

The lands affected by the project are covered by poplar woods, cornfields, and meadows. As the area is often flooded, the closest housing is 600 meters away, and there are barely more than 12,000 residents within a 10-kilometer radius. This relative demographic sparsity may explain the softness of the local opposition. At one time, the Aube department general council did show some concern. But the fiscal manna that will pour down upon the rural communities in the area (estimated by EDF at 230 million francs) quickly soothed these protests.

But the site, although almost deserted in the immediate vicinity, is still 100 kilometers from Paris, at the gateway of the largest population center in France. And reaction to the EDF project did not take long in coming. First came the response from the environmentalists, and in particular from the Friends of the Earth: before and at the time of the opening of the public utility inquiry, there were demonstrations against the Nogent power plant. Among the points they raised was the "aberration" of conducting this inquiry just with the population located within 5 kilometers from the site, while an incident at Nogent could affect 10 million people, the people in the region of Paris.

Furthermore, during this inquiry, EDF did not ask the opinion of the elected officials of the Ile de France region. They had to settle for what could at best be termed a laconic communication. The plant's opponents charge that EDF did not answer all the questions asked by the 36,000 people--many of whom came from towns located beyond the perimeter--who, during the inquiry, expressed the reasons for their dissatisfaction. But Paris is not Brittany, and the environmentalists' campaign at Nogent has not had the impact that it had at Plogoff.

And yet, despite the many assurances given by EDF about safety, the reluctance was, and still remains, quite strong--even within the administration itself.

Chief of the water supply for the Paris region has had a good deal of the official opposition. In case of an accidental pollution above stream from Paris, the water

quality measurement stations that operate continuously would transmit an alarm to the treatment plants which can immediately stop taking in water. Once the machinery is stopped, the water reserves would quickly be depleted and very soon the situation would become more or less catastrophic, depending on the sectors involved. The problem becomes even worse when we realize that the water resources we now have will not be sufficient for the future; new sources must be sought. The Seine-Normandie basin agency has been thinking of reserving the Montereau watershed. But this source of drinking water is located just 10 kilometers downstream from Nogent. And then, even aside from an incident, there are all the "normal" pollutions caused by operating a plant, if only the pollution caused by heating the water, which happens when water is discharged from the cooling circuit. In short, among those hesitant about the project, there is the basin agency.

The Seine-et-Marne general council is calling for the reopening of the public utility inquiry so that it can be conducted on a regional basis. But their reaction is coming a little late; the start of service of the plant has been announced for 1986-1987.

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## INCREASED NUCLEAR FUEL PRODUCTION FORESEEN

Paris LE MONDE in French 2 Apr 80 p 16

[Text] Several months from now the French-Belgian Fuel Manufacturing Company (FBFC), an 80-percent owned subsidiary of EUROFUEL, in which Pechiney-Ugine-Kuhimann is the principal stockholder, should state its intentions regarding increasing its production capacity. In a market which has become gloomy because of the slowdown in civil nuclear programs the FBFC "is making money" for it is the supplier to the French Electric Power Company for all of the latter's nuclear power plants in operation and some others on the verge of starting up.

By means of the two plants it has--at Dessel, Belgium and at Romans, France, in the Department of Isere, this company last year produced 700 tons of nuclear fuel, which is the equivalent of 10 reactor cores. Considering the authorizations it was granted at the time it was established the Romans plant could, if necessary, double its capacity. For the time being it is only contemplated to establish a new line for conversion of uranium hexafluoride gas, received from enrichment plants--American, Soviet, and since January, EURODIF--into a solid, uranium oxide, which can easily be hulled and packaged. The new shop may have additional capacity of 200 tons annually.

This addition is planned to "respond to the growth of the French nuclear electric power program and provide supply for power plants in foreign countries." Romans is already preparing to manufacture the fuel elements for the future 1,300-megawatt power plants, the first of which--Paluel 1--should go into service in 1982 or 1983. Four mock-ups of these elements are soon to go to Cadarache for testing in the installations of the Atom. Energy Commission. Four others, slightly different, have been ordered by German electrical engineers for the Biblis power plant. The French Electric Power Company, no doubt desiring to test competitive equipment, is doing the same and is said to have ordered, from German manufacturers, elements for 900-megawatt power plants with options for two core recharges for a total quantity of 34 tons.

Although the FBFC [as published--FBFC?] is not neglecting the future and is wondering about export possibilities\* at a time when nuclear reactor sales are \*Cores have been supplied to Belgium and others are going to be supplied to South Africa. But the cancellation of the Iranian order, after the Shah's overthrow, represents a big loss in revenue for the FBFC.

comparatively limited, its directors are following with interest the negotiations on the provisions of the next renewal of the pressurized water reactor construction license granted by Westinghouse to the French FRAMATOME firm. Will the reactors which will be built on the basis of this new agreement be different from what they are at present? If so, the production facilities of nuclear fuel manufacturers will have to be adapted to the new requirements. The answer to this question is impatiently awaited by the president of the FBFC, Bruno de Vulpius, who acknowledges that, today, discussions on fuel are "far less advanced than those already underway on the reactors themselves." One of the reasons for this is that the parties face to face with each other on fuel are more numerous--and consequently it is more difficult for agreement--than those involved in fabrication of the nuclear boilers.

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**FALLDIN, OPPONENTS DEBATE NEED FOR TWELVE H-PLANTS**

Stockholm SVENSKA DAGBLADET in Swedish 18 Apr 80 p 4

(Article by Bo Orlund: "All Twelve Reactors Are Needed")

(Text) "Twelve reactors at the most." The debate on the 12th reactor is back again at full strength. Prime Minister Thorbjorn Falldin spoke again in the Riksdag on Thursday in favor of the concept "at the most." At the same time General Manager Jonas Norrby said today in SVENSKA DAGBLADET that Sweden needs all 12 reactors.

"During dry years and with a full employment economy we must operate all 12 reactors at the maximum so that industry will not be forced to go to power rationing," said Norrby.

In an interview in DAGENS NYHETER Falldin said that the State Power Board has confirmed that we will have a surplus of electric power when the 12 reactors are in use, and that we can think about exporting electricity.

"It is not a question of the difference between much and marginal," said Jonas Norrby. "It is a question of a theoretical marginal! If, for example, we are to undertake an intensified safety effort in the reactors, then all 12 cannot be operated at once, one or more must always be shut down, and already the margin is gone."

Norrby continued, "I will also say that with a full employment economy and in dry years the 12 reactors will by no means be sufficient to supply industry with enough electricity. In that situation the heating plants and reactive turbines will also be operating.

On the other hand, thanks to our reactors we will not need to operate all of our oil condensers and all of our gas turbines, and that is certainly something we should appreciate for economic reasons.

"Let me remind you that to operate oil condensers today costs 20 ore per kilowatt hour, and electricity from gas turbines costs 40 ore per kilowatt hour."

Does Norrby believe that the renewed debate on "at the most" constitutes a threat to the 12th reactor, Oskarshamn 3?

"The 12th reactor is not my point, I am only talking from the standpoint of the energy supply," answered Norrby.

In the Riksdag on Thursday Thorbjörn Falldin maintained that the Center Party is ready to discuss fewer than 12 reactors if that is of interest to others.

"But," he said, "we are entirely opposed to any political veto. If the parties who advocated lines 1 and 2 continue to support the interpretation that there shall be 12 reactors at any price, then that is a political fact."

Falldin made these remarks in a question period. He was attacked by Nils Hjort (Social Democratic Party) and Oswald Söderqvist (Left-Wing Communist Party) for his attitude toward what "at the most 12" really means.

Hjort was unhappy that the 12th reactor might never be built. "The formula quite simply says that 12 reactors will be built and put to use," said Hjort.

Söderqvist, on the other hand, said that the formula says that 12 will never be put to use.

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**SOCIALIST ANTI-NUCLEAR GROUP CONTINUES ACTIVITY**

Stockholm DAGENS NYHETER in Swedish 21 Apr 80 p 8

[Article by Ingvar Andersson: "Close Barseback Immediately--Increased Support For SAFE"]

[Text] Close Barseback immediately. Do not build reactors 11 and 12. These are the demands of SAFE (Social Democrats for an Alternative Energy Policy) in a declaration which was approved at a meeting in Falun over the weekend of about 100 members of SAFE from all over the country.

SAFE maintains that nothing has been changed by the referendum. Nuclear power is just as dangerous as before the referendum, and just as incompatible with democratic socialism.

"We can only accept an energy policy which leads to quick liquidation," said the declaration. "Capitalism's demand for an energy-hungry automation must be rejected."

"Discussion of liquidation in the social democratic leadership during the referendum campaign must immediately be transformed into practical concrete policy in order to be credible."

Among the demands which SAFE is supporting are also the closing of Barseback and rejection of reactors 11 and 12, a powerful commitment to alternative energy sources, and support for bringing in renewable energy sources.

Also called for are better management, prohibition of electric heat in new buildings, a research center for alternative energy techniques, prohibition of uranium mining, and prohibition of the export of nuclear power technology. SAFE believes that spreading nuclear power leads to spreading nuclear weapons.

"It is inescapable to reject nuclear power if one is working for peace and survival," said the declaration.

### **Stronger Support**

There has been speculation that SAFE would be disbanded since the referendum is over, but the meeting in Falun proved those rumors false.

"We see the support for SAFE's ideas among members of the party as being stronger than ever. As long as the party leadership persists in its reliance on nuclear power and capitalism, SAFE must continue its activity."

The meeting proclaimed that SAFE's work is not intended to split the party. "It is to give expression to the expectations and needs of a large portion of the membership of the party to continue the party's best anti-capitalist traditions," they said. But they rejected the appeal of the party leaders' advertising campaign urging social democrats to "return to the party fold."

### **Retain Our Position**

"Nuclear power has not become safer because people voted affirmatively," said SAFE in its declaration. "We are going to retain our negative position."

SAFE also discussed how the organization will function in the future. The number of members has grown from a handful several years ago to many thousand. But SAFE does not want to become a movement which is encumbered with a bureaucracy.

"We will continue our work in the same way as before. Unity will be built on commitment to mutual questions and interest."

That is the working method which is necessary in order to avoid centralization, top level control, and bureaucracy which SAFE says characterizes the SAP [Social Democratic Labor Party] and threatens democracy.

According to what DAGENS NYHETER has learned there are signs that the social democratic leadership is impressed by SAFE's work. Discussions are going on inside the leadership on whether to change the party's energy policy group, and contact has been made with leading members of SAFE in order to join them in their work. There have also been local contacts in many places to get SAFE members to join energy groups in the party organization.

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